ATOMIC ENERGY Newsletter

THE FIRST AND ONLY

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Dear Sir:

The $947,970,000.00 budget for the U. S. Atomic Energy Commission for fiscal 1951 was approved last week in Washington by a Senate Appropriations subcommittee. Originally, the AEC had asked for a total of $1,059,612,400.00. This was reduced by the House Appropriations Committee, and this new Senate action is in line with the House recommendations: a cut of 10% in the cash requested, allowing $647,820,000.00; and also a cut of 10% in new contract authority, allowing $300,150,000.00. Some of the cash funds will be used to liquidate 1950 contractual obligations; included, is $188,600,000.00 -- the initial spending under the expanded program enlarging the plutonium facilities at Hanford Works.

President Truman asked Congress last week for an additional $260,000,000.00 for the AEC for fiscal 1951. This $260 million, which was a supplemental appropriations request, is needed primarily for production facilities for the expanded program (first spending on which was the $188,600,000.00 as above), under which emphasis is now on greater output of nuclear and thermonuclear weapons, and the development of nuclear reactors with primary military uses. (Significantly, research facilities were allocated $6 million less for fiscal 1951, than for 1950, while weapon development spending was increased by $28 million.)

Overriding an adverse report of the Joint Congressional Committee on Atomic Energy (AEN 7/4/50, p.1), the Senate last week in Washington confirmed by a vote of 55 to 24 the nomination of Summer T. Pike, Maine Republican, for a new four-year term as a member of the U. S. Atomic Energy Commission... New Chairman of the USAEC is now Gordon E. Dean, a member of the Commission since May, 1949. He was appointed by President Truman the day after Mr. Pike was confirmed (as above).

An engineering study of various U.S. atomic projects will be undertaken by E. I. du Pont de Nemours & Co., Wilmington, under a contract recently negotiated by the AEC with that firm. The new study involves an analysis of research and development work underway at many locations throughout the country. Such work includes exploratory and preliminary design studies for new reactors; ways of using basic raw materials to best advantage; study and development of automatic fuses as safety devices for nuclear reactors; development of systems for the recovery of fissionable material during processing, and from so-called wastes; recovery of useful process chemicals and other useful materials; development of controls for processing systems which will largely render effluents hazard free; and other projects.

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AT THE ATOMIC CITIES & CENTERS IN THE UNITED STATES...

RICHLAND, Washington- The Korean war will not affect the construction program here, since facilities are planned on a long-range basis. The basic plutonium production units operate on a seven-day week, 24 hour a day schedule, at full capacity; until the new reactors are completed, no additional capacity will be available. Now, concrete is being poured, and steel is rising on one plant, although the metal recovery plant, and the new waterworks here, have experienced delays.

A total of 23 research projects with total commitments of $736,411.00 are in progress at educational institutions in this area, with administration of the contracts by the AEC's Hanford office. New projects under this program include construction of a 60-inch cyclotron at the University of Washington, Seattle; other new U. of Washington studies concern the biological effects of radioactive sulphur, and research in the field of very low temperature. At Reed College, Portland, Oregon, new projets underway include a short radiological monitoring training course, while at Oregon State College, new work includes radioisotope studies of the action of weed killers, particularly 2,4-D. Other tracer studies at Oregon State will help to determine vitamin-acid and carbohydrate-amino acid interrelationships.

Defense plans for this area, which is in the vulnerable Pacific northwest, now include a doubling of the anti-aircraft troops stationed here, at North Richland, which is shortly to be converted into a permanent Army post. In addition, plans are ready and have been tried for procedures on evacuating employees and blacking-out Hanford operations areas. Emergency radiation teams have been trained and equipped to handle any release of radioactivity caused by accidents or enemy action.

LOS ALAMOS, New Mexico- Zia Company and the AEC have come to terms on the management fee for the 1951 fiscal year, here at Los Alamos. A supplement to Zia's three-year contract sets a $131,014.00 fee for 1951. Estimated total budget for the activities of Zia (performing community and scientific laboratory maintenance and operation) for fiscal 1951 is $10,518,497.00. (The Zia Company is a subsidiary of Robert E. McKee, El Paso, building contractors at Los Alamos since its early days. For fiscal 1950, Zia received a net yearly fee of $154,000.00; all expenses are reimbursed by the Government At Oak Ridge, the Turner Construction Co., New York, through their subsidiary, Roane-Anderson Co., does similar work; its yearly fee is $180,000.00. Both Zia and Roane-Anderson have been under attack by Congressional appropriation committees. Grounds for the attack are the size of the fees--which have been shown to be less than real estate management firms earn in accepted business dealings--and charges that a New York firm is running a Tennessee town. The latter charge was made by Senator McKellar, Tennessee. Although a proviso to limit fees paid to such companies to $90,000.00 was stricken from the AEC's 1951 operating budget, where it had been placed by the House, a survey is now underway to determine the feasibility of selling real estate to the occupants of the "atomic" towns, and permitting them a measure of self-government.)

With a bid of $11,209,290.00, Utah Construction Co., and C. H. Leavell Company have made the low offer for construction of the chemistry laboratory building for the re-located Scientific Laboratories in the new south mesa technical area here. It is the largest construction outlined so far in the move of technical research areas here away from the Los Alamos townsite. When the move is completed, most major research here will be conducted on the south mesa.

OAK RIDGE, Tennessee- Thirty-two research workers from 16 states are now enrolled in the 16th course in radioisotope techniques given here by the Oak Ridge Institute of Nuclear Studies. This is the second course given this Summer by the Institute, and which is designed to facilitate the use of radioisotopes in the fields of science, industry and agriculture.

With activation of the radar defense network in this vicinity, civil aircraft flying within a 172-mile radius of the atomic project here are now subject to new regulations. Within that area, civil aircraft flying more than 6,000-feet above mean sea level, or 4,000-feet above the immediate terrain, whichever is the higher, must file a flight plan with the CAA.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear work...

From the Manufacturers- Model RA-1 Strontium Medical Applicator. For beta ray therapy. Consists of a source of about 25 millicuries of Sr-90 mounted on the end of a 6 3/4" shaft. A 4" x 1/4" circular Plexiglas shield is mounted on the shaft for the protection of the operator. The Sr-90 yields a dosage rate of approximately 20 roentgens-beta equivalent per second on the aluminum surface of the applicator.....One millicurie Cobalt-60 Gamma Source, Model R-30. Consists of a hermetically sealed point source of Co-60, and a heavy lead shield in which it can be inserted and fastened. For calibration and checking of instruments and film, experimental work with Geiger tubes, etc.--Tracerlab, Inc., Boston 10, Mass.

Type A, Model S, Van de Graaff. This two million volt electron accelerator is a self-contained, self-supported unit, with an operating potential of 0.75 -- 2.0 million volts. Electron beam currents are from 0.01 to 100 microamperes. Combination cathode-ray window and gold x-ray target for use of either electrons or x-rays.--High Voltage Engineering Corp., Cambridge 38, Mass.

Model 1615, Laboratory Monitor. For alpha-beta-gamma detection. A general purpose count rate instrument for checking benches, glassware, clothing, etc., for contamination, or for continuous monitoring of background air contamination or isotope decay. Provides choice of five ranges, from 500 to 50,000 counts per minute, full scale. Incorporates loud speaker, with volume control. Permanent magnet, in probe, facilitates its mounting.....Special Liquid Counter Set. To simplify laboratory work with solutions containing radioactive materials. In addition to standard laboratory pieces, such as ring stand and necessary clamps, the set also includes a special Marinelli type beaker and support on which the beaker can be mounted. Plug-in type counter is provided with the set, over which the Marinelli beaker can be placed.--Nuclear Instrument & Chemical Corp., Chicago 10, Ill.

Notes on the Industry- Mr. L. W. Cronkhite, President, Atomic Instrument Co., Boston, has announced that his company's instrument orders, for the second quarter of this year, are over $100 thousand. In addition, this firm is engaged in special Government research, and holds defense contracts. Larger quarters have been leased by the company for September occupancy.

Radioactive Products, Inc., have been awarded a contract by the AEC to develop the synthesis and manufacture of isotope-labeled compounds from the AEC. The work will consist of finding efficient techniques, and procedures, whereby isotopes may be introduced into compounds in a specific location and in good yields. Specifically, the project will include the incorporation of carbon-14 into terminal and intermediate locations of various saturated and unsaturated fatty acids and derivative gylcerides, and into normal and isooctane. Homer S. Myers, V.P. of the firm, will be in charge of the project which will continue through June, 1951.

Following the recent acquisition of Kellex Corporation, New York nuclear engineering firm, by Vitro Manufacturing Co., Pittsburgh (AEN 7/4/50, p.1), Albert L. Baker, a director and V.P. of Kellex, has been made President of that organization. William H. Denne, Jr., Kellex general manager, has been made a vice-president.....New members of the board of directors of Tracerlab, Inc., Boston, are L. L. Strauss, former AEC Commissioner, and C. E. Cotting, president of Lee-Higginson Corp., the underwriter in Tracerlab's first public financing in 1949. Tracerlab, manufacturer and processor of radioactive chemicals, and manufacturer of radiation measuring instruments, had a backlog June 30th, 1950, of commercial and service contract orders totaling $2,156,272.00, according to William E. Barbour, Jr., Tracerlab president. He said this is the largest backlog in the Company's history.

Tracer Processes, Ltd., Oxford St., London, W. 1, exclusively a nuclear consultant firm, is the second British organization to make such services available in the United Kingdom. The company offers a complete advisory service on all aspects of nuclear instrumentation and the equipment of radiochemical laboratories.

ATOMIC PATENT DIGEST...latest U.S. & British applications & grants...

Patents granted- Radiographic device for examining a test object Ionizing radiation, from a suitable source, is formed into a relatively thin, collimated planar beam. The object is swept by the beam, in a direction normal to its plane, to irradiate a single line portion of the test object at a time. The emergent radiation is detected by a device sensitive to such radiation. U. S. Pat. No. 2,511,853, issued June 20, 1950, to Herman F. Kaiser, Washington, D. C.

Method of radiological well logging. A source of neutrons is passed through the bore hole being examined. Gamma rays (liberated when the neutrons penetrate the walls of the hole) are measured for intensity, simultaneously at zones spaced equidistantly from, and at opposite sides, of the neutron source. U.S. Pat. No. 2,512,020, issued June 20, 1950; assigned to Texas Company, N.Y.

Radioactivity detector. A gamma radiation detector, comprising a radioactive counter surrounded by a second radioactive counter, with the second providing no opposition to the passage of gamma ray energy to the first. Means are provided to combine in opposition the output signals from both counters. U.S. Pat. No. 2,513, 356, issued July 4, 1950, to G. J. Perlow, J. D. Shipman, Jr., and C. A. Schroeder, Washington, D. C.

Radiation detector system. Producing electrical impulses corresponding to the magnitude and configuration of the radiation, and in a circuit fed by the radiation, producing signals which discriminate in favor of the higher frequencies. Means are also provided to amplify and reproduce the signals, and an attenuator, responsive to the signals, offers progressively greater attenuation to the lower frequencies. U.S. Pat. No. 2,514,135, issued July 4,1950; assigned to the United States of America (USAEC).

Patents available for assignment or licensing: The following patents, owned by Canadian Radium and Uranium Corp., 630 Fifth Ave., New York 20, cover applications of radioactive materials, and allied apparatus. Inquiries concerning these patents should be directed to this firm. (1) Glow discharge lamp, supplying constant striking and operating voltage. U.S. Pat. No. 2,374,677. (2) Time relay, with period which can be varied by using various radioactive materials. U.S. Pat. No. 2,375,130. (3) Alpha particle indicator. U. S. Pat. No. 2,383,820. (4) High ohmic resistors created by emanation power of radioactive radiation. U.S. Pat. No. 2,395,623. (5) Radioactive switch, using an ionized air gap in place of physical contact. U. S. Pat. No. 2,399,061. (6) Alpha-ray emission device, and method of making. U. S. Pat. No. 2,405,026. (7) Carrier for radioactive material, and method of making. U. S. Pat. No. 2,442,617. (8) Apparatus using radioactive material to detect minute changes in dimensions. U.S. Pat. No. 2,451,908. (9) Indicating device visible in the dark. U.S. Pat. No. 2,451,979. (10) Improving operation of spark-plug with ionizing radiation. U.S. Pat. 2,457, 973. (11) Area measuring device and method. U.S. Pat. No. 2,462,351. (12) Measuring movement of body. U.S Pat. No. 2,487,216. (13) Cold cathode gaseous discharge tube. U.S. Pat. No. 2,487,437. (14) Exploring for radioactive minerals by aircraft, surface vehicle, or other moving carrier. U.S. Pat. No. 2,499,489.

BOOKS & OTHER PUBLICATIONS...in the nuclear field...

Radioisotope Price Revision. Supplement No.4 to catalogue and price list No.3. Announces reduced prices, on certain radioisotopes, and new forms in which others are available.--Isotopes Div., USAEC, Oak Ridge, Tenn. (n/c)

The Effects of Atomic Weapons. Basic technical information on the phenomena accompanying an atomic explosion. Cloud chamber effect, ball of fire, break-away of shock front, spray dome, base surge, fall-out, mushroom cloud, etc., produced by atomic bursts above ground and under water, described and illustrated by photographs.--Superintendent of Documents, Wash. 25, D.C. ($1.25)

Nuclear Physics. A textbook, by Francis Bitter, M.I.T. Based upon the introductory nuclear physics course at M.I.T. Fundamentals of nuclear physics for undergraduates who have completed a course in atomic theory. 208 pages. Addison-Wesley Press, Inc., Cambridge 42, Mass. ($5.50)

RAW MATERIALS...radioactive ores & other essentials for nuclear work...

UNITED STATES- Reviewing the findings of radioactive minerals in Arizona, and neighboring States, Charles H. Dunning, Director, Department of Mineral Resources of Arizona, has pointed out that although several new discoveries of uranium minerals have been made in Arizona during the past year, actual production is still confined to the northeast corner of the State, where the regulations of the Navajo Indians still inhibit prospecting and development. With the exception of the Hillside Mine, these new discoveries are mostly raw prospects, and will require time and incentive for development into the producing stage. As to the Hillside Mine, in western Yavapai County, Dunning said that exploration work in the deeper levels of the mine has encountered new ore with a good uranium content. So satisfactory have been the results of work at this mine, he stated, that a pilot plant will be built at the mine in the near future. Discoveries of uranium near Marysvale, Utah, Dunning noted, have induced the AEC to establish a purchase depot there with view to installing a plant. Such a plant will also provide an outlet for the ore previously discovered at Hacks Canyon, near Fredonia, Arizona.

FRANCE- Uranium ore mining operations have begun at La Crouzille, a town about 15 miles northeast of Limoges. First exploratory work had been done there in November, 1948, when a radioactive mineral find was identified as pitchblende.

BRAZIL- Concern here over the export to the U. S. of monazite sands in the natural state has resulted in the drafting of legislation to ban all exports of monazite sands from Brazil. Bills to prohibit such export are now before the Brazilian Congress. (In 1949, 2,500 tons of these sands are said to have been shipped to the U.S.; purchase price is reported at $200.00/ton.) The situation is disturbing to U.S. processors, since the monazite sands of Brazil and India are the world's best sources of thorium, and other rare earths, and exports from India have been under embargo for some time. Lindsay Light and Chemical Co., West Chicago, leading U.S. refiner of thorium, and supplier to the AEC of that metal, obtains much of its monazite sands from a subsidiary in Brazil. As yet, the domestic sources of thorium--monazite sands of California, Idaho, and Florida--have not proved adequate should the Brazilian supply be shut off.

RADIOISOTOPES...as used for tracer & therapy applications...

In a study of plant growth regulators at the New York Agricultural Experiment Station, Geneva, N.Y., 2,4-D labeled with carbon-14 has been applied to red kidney bean plants. The experimenters, R. W. Holley, F. P. Boyle, and D. B. Hand, studied the movement of radioactive carbon in such plants at various times after the application of the labeled 2,4-D. They found that nearly all the radioactive material in the plant one week after treatment can be isolated from the plant. From the distribution of the radioactive carbon in the plant, it is believed that its chief movement is downward in the stems. Radioactive carbon is lost from the plant as carbon dioxide, it was observed.

Problems connected with the production and refining of petroleum will be studied with radioactive tracer techniques at the new radiochemical laboratory of the Bureau of Mines, Bartlesville, Okla. The laboratory, scheduled for completion this September, is now under construction. When the facilities are available, tracers will be used in various investigations in the secondary recovery of petroleum by water flooding and the injection of gas and air. The first application will be in using tracers, both radioactive and stable, in waters used for subsurface injection water-flooding. With the availability of tracers that can be introduced at input wells, and detected at producing wells, it is hoped to obtain data which has been unobtainable in the past. The use of such tracers is expected to show accurately, for instance, the exact extent and rate of advance of the water.

Sincerely,

The Staff,
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